



Figure C-4. Simulated losses to the Snake River resulting from pumping at well sites A to D. (Modified from Hubbell and others, 1997; reprinted with permission of the National Ground Water Association. Copyright 1997.)

The results of pumping at site D illustrate how surface-water depletion can continue long after pumping is discontinued at a well. These residual effects are demonstrated at site D by simulating continuous pumping for 30 years followed by a 70-year nonpumping period. Depletion of flow to the river increases for approximately 15 years after pumping at site D is discontinued. Depletion is still occurring 70 years after pumping ceases at a rate equivalent to 15 percent of the average pumping rate during the 30 years of pumping at site D.

The simulated results for sites A to D indicate that the location of a well relative to the ground-water-flow system has a significant effect on where changes in flow in the system take place and how long the system continues to adjust before equilibrium is reached. These results highlight the importance of taking transient response times of ground-water systems into account in long-term water-resources planning.